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ABSTRACT

A frame of reference concerning health implications, based on the interaction of numerous factors in the physical, social, and biological environments, is provided in this prototype curriculum for grades 10-12. Development of sound techniques in problem solving is encouraged, resulting from the need to understand the nature and complexities of multiple effect and multiple causation. Specific curriculum content studies: (1) definitions of epidemiology and ecology, (2) epidemiological method, (3) factors which influence the occurrence, distribution, development, control, and prevention of disease, disability, defect, and death, and (4) modern public health problems with ecological implications. Appended material includes bibliographies of multimedia resources and a health behavior model. This publication is one in a series of health curriculum materials devoted to environmental and community health (Strand IV). Four other strands deal with physical and mental health, sociological health problems, and education for survival. The format consists of four columns intended to provide teachers with: (1) a basic content outline, (2) major understandings and fundamental concepts, (3) teaching aids and learning activities, and (4) information about resource materials, sources, and personnel. Because of the comprehensive nature of the total curriculum, teachers are advised to become familiar with all strands presently in print. Related documents in Strand IV are ED 037 738-9, ED 049 477-8, and SE 016 280-6. (BL)

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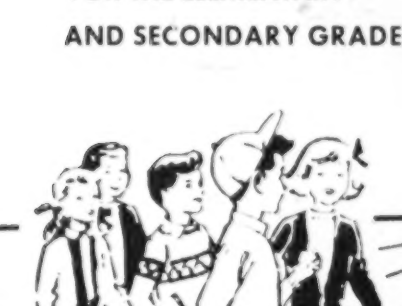
CURRICULUM MATERIALS
FOR THE ELEMENTARY
AND SECONDARY GRADES



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STRAND IV ENVIRONMENTA AND COMMUNITY HEALTH

Ecology and Epidemiology of Health Grades 10, 11, and 12

Special edition for evaluation and discussion

THE UNIVERSITY OF THE STATE OF NEW YORK/THE STATE EDUCATION DEPARTMENT
BUREAU OF SECONDARY CURRICULUM DEVELOPMENT/ALBANY, NEW YORK 12224/1970

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HEALTH CURRICULUM MATERIALS
Grades 10, 11, 12

STRAND IV - ENVIRONMENTAL AND COMMUNITY HEALTH
ECOLOGY AND EPIDEMIOLOGY OF HEALTH

The University of the State of New York/The State Education Department
Bureau of Secondary Curriculum Development/Albany 12224
1970

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FOREWORD

This publication contains curriculum suggestions for teaching Strand IV - Environmental and Community Health - Ecology and Epidemiology of Health, for grades 10, 11, and 12.

The publication format of four columns is intended to provide teachers with a basic content outline, in the first column; a listing of the major understandings and fundamental concepts which children may achieve, in the second column; and information specifically designed for classroom teachers which should provide them with resource materials, teaching aids, and supplementary information, in the third and fourth columns.

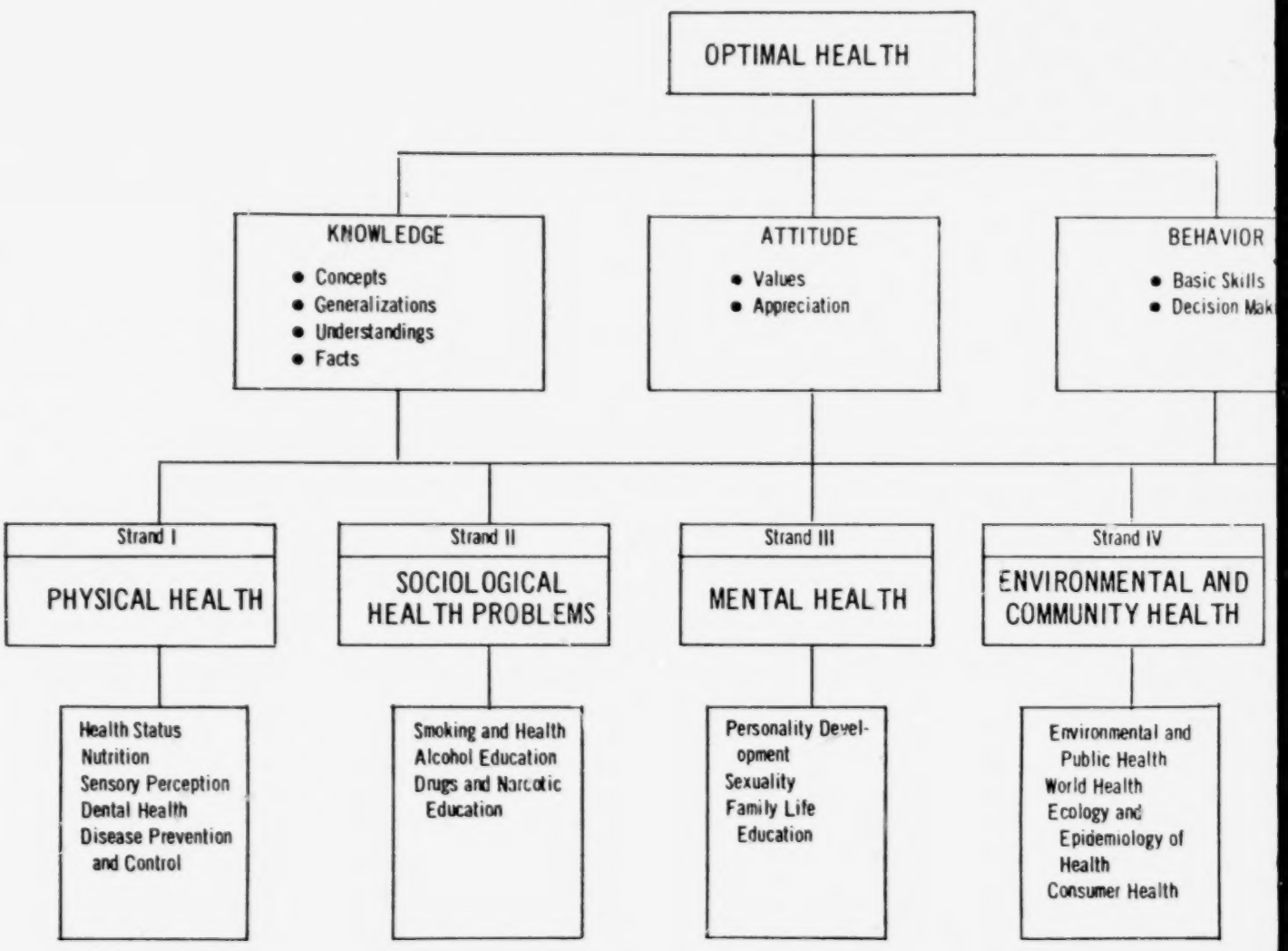
The comprehensive nature of the health program makes it imperative that teachers gain familiarity with all of the strands presently in print. In this way, important teaching-learning experiences may be developed by cross-referring from one strand to another.

It is recommended that the health coordinator in each school system review these materials carefully and consult with teachers, administrators, and leaders of interested parent groups in order to determine the most appropriate manner in which to utilize this strand as an integral part of a locally adapted, broad, and comprehensive program in health education.

The curriculum materials presented here are in tentative form and are subject to modification in content and sequence. Critiques of the format, content, and sequence are welcomed.

Gordon E. Van Hooft
Chief, Bureau of Secondary Curriculum Development

William E. Young
Director, Curriculum Development Center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KNOWLEDGE
• Concepts
• Generalizations
• Understandings
• Facts
ATTITUDE
• Values
• Appreciation
BEHAVIOR
• Basic Skills
• Decision Mak
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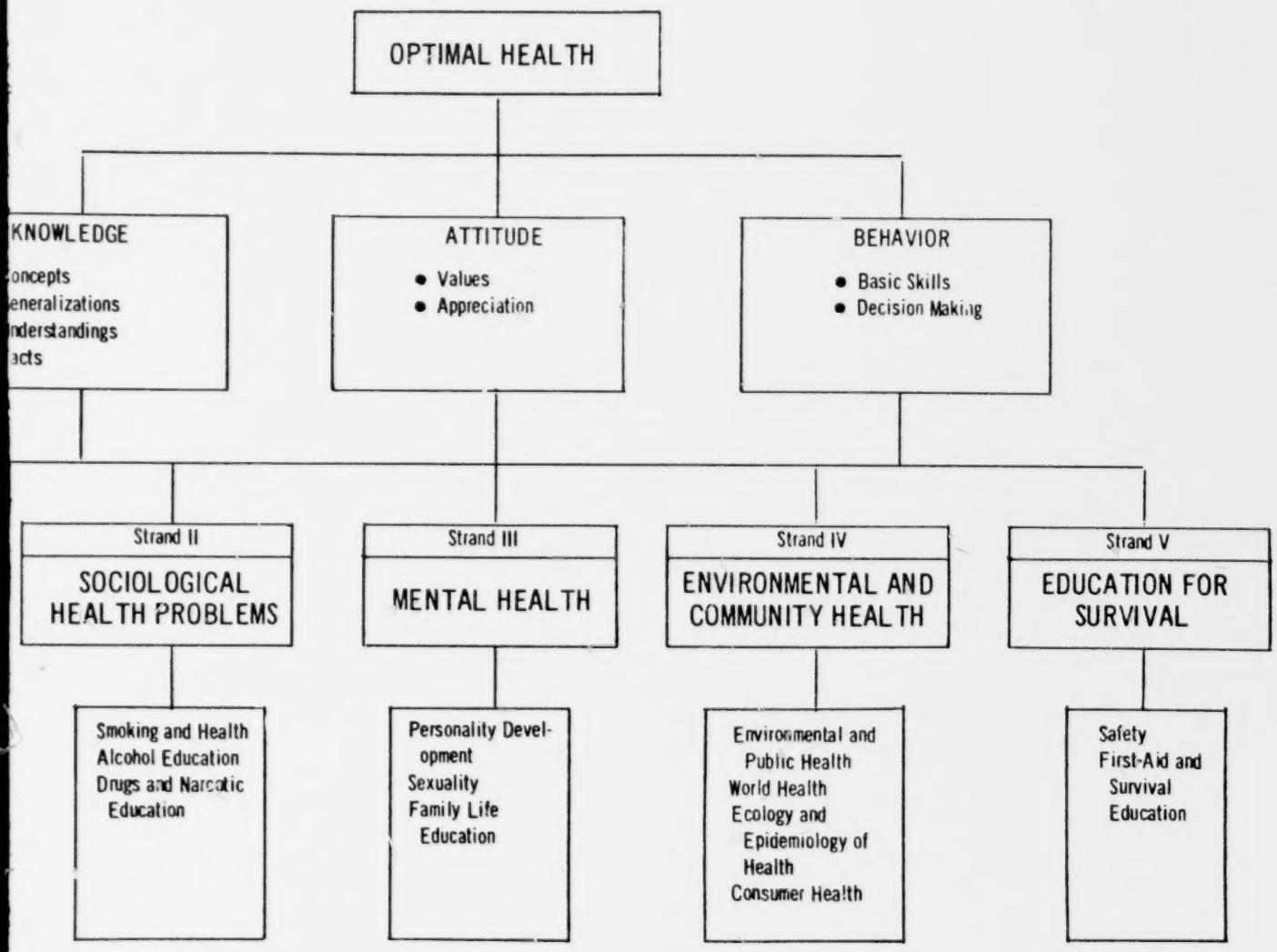
PHYSICAL HEALTH
Strand II
SOCIOLOGICAL HEALTH PROBLEMS
Strand III
MENTAL HEALTH
Strand IV
ENVIRONMENTAL AND COMMUNITY HEALTH
Health Status
Nutrition
Sensory Perception
Dental Health
Disease Prevention and Control
Smoking and Health
Alcohol Education
Drugs and Narcotic Education
Personality Development
Sexuality
Family Life Education
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health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Alcohol Education
Drugs and Narcotic Education
Personality Development
Sexuality
Family Life Education
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health
Safety
First-Aid and Survival Education

ECOLOGY AND EPIDEMIOLOGY OF HEALTH

Grades 10, 11, 12

Overview

These materials are designed to provide a frame of reference for the student concerning the health implications of the interaction of numerous factors in his physical, social, and biological environments. Furthermore, each student should develop an appreciation and understanding of his personal role in this interrelationship, and the degree to which he controls and determines his health behavior.

The nature and complexities of multiple effect and multiple causation must be understood before the student can attempt to solve today's health problems, or to contribute to their solutions. The content of this strand attempts to help the student to develop sound techniques in solving health related problems. The processes of the epidemiologist are described extensively.

Pupil Objectives

Pupils in grades 10, 11, and 12 should:

- develop an approach to understanding and dealing with health problems.
- develop an understanding of the changing concepts of human ecology and epidemiology as they relate to public health, preventive medicine, and research.
- develop an understanding of modern concepts of health, disease, and longevity.
- become aware of the favorable and unfavorable ecological factors affecting man's health status.
- become familiar with current public health issues and problems that have ecological implications.

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OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEM F
I. Definitions of Epidemiology and Ecology			
A. Human ecology	Human ecology is the science which studies the relationships of man as he interacts with his total environment, (physical, biological, and sociocultural).	View the film: *Population ecology*.	Ecolog deals tionsh their human consid relati physic social ever, that h times, involv relati organi interm vector logica their may al the tr to hum
B. Epidemiology	Present interpretation: Epidemiology is the science and method of study concerned with the factors and conditions which determine the occurrence and distribution of health, disease, defect, disability, and death among groups of people.	The history of epidemiology from the past to the present has changed considerably. To truly appreciate the subject, it is suggested that the students read about and report on some of the outstanding epidemiologists (they may not have been referred to as such) and their contributions to epidemiology.	Infect commun as typ diphth whoopi at onc concer Since the ep vaccin trolle Conse

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Human ecology is the science which studies the relationships of man as he interacts with his total environment, (physical, biological, and sociocultural).	View the film: *Population ecology*.	Ecology is the science that deals with the interrelationships of organisms and their environments. In human ecology the primary consideration is the interrelationship of man and his physical, emotional, and social environments. However, it should be noted that human ecology, at times, necessarily becomes involved with ecological relationships of other organisms. For example, intermediary hosts and vectors experience an ecological relationship in their own life cycle and may also be implicated in the transmission of disease to humans.
Present interpretation: Epidemiology is the science and method of study concerned with the factors and conditions which determine the occurrence and distribution of health, disease, defect, disability, and death among groups of people.	The history of epidemiology from the past to the present has changed considerably. To truly appreciate the subject, it is suggested that the students read about and report on some of the outstanding epidemiologists (they may not have been referred to as such) and their contributions to epidemiology.	Infectious disease and communicable diseases, such as typhoid fever, TB, diphtheria, smallpox, whooping cough, etc., were at one time the primary concern of epidemiology. Since then, with the aid of the epidemiological approach, vaccines have either controlled or eradicated them. Consequently, epidemiology

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		Refer to books and articles by Rouche, Dubos, DeKruif, Enders, Barkoff in the bibliography.	has pre (he etc sui a f tiv lin
1. Collection of data	To determine normal and abnormal occurrence of disease, reporting and collection systems are necessary.	What diseases are "reportable"? How are vital statistics data collected? Write or visit a county health department to obtain a monthly vital statistics summary. Obtain copies of *Vital Statistics of the U.S.* from the Superintendent of Documents, Washington, D.C. Have some students refer to: *Principles of epidemiology* by Ian Taylor. Report to class the major principles of epidemiology.	An the geo of cle exp thi cas of epi and kno occ In lon dif hen dem fus mio stu fac ass dis of obe wit dis

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Refer to books and articles by Rouche, Dubos, DeKruif, Enders, Bankoff in the bibliography.	has grown to encounter new problems, such as accidents (home, traffic, industry, etc.) heart disease, cancer, suicide, diabetes, to name a few, and even administrative problems not directly linked with disease.
To determine normal and abnormal occurrence of disease, reporting and collection systems are necessary.	What diseases are "reportable"? How are vital statistics data collected? Write or visit a county health department to obtain a monthly vital statistics summary. Obtain copies of *Vital Statistics of the U.S.* from the Superintendent of Documents, Washington, D.C. Have some students refer to: *Principles of epidemiology* by Ian Taylor. Report to class the major principles of epidemiology.	An epidemic is defined as the occurrence, in a geographic area in a period of time, of an illness clearly in excess of normal expectation. Numerically, this may range from one case (smallpox) to thousands of cases (influenza). Non-epidemic disease frequency and distribution must be known to determine the occurrence of an epidemic. In chronic diseases, the prolonged epidemic waves are difficult to evaluate, hence epidemic and nonepidemic occurrence is confusing. Here the epidemiological approach is to study the correlation of factors thought to be associated in causing a disease (e.g. correlation of diet, cholesterol, obesity, and blood pressure with coronary heart disease.)

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUP
2. Census reports	Census reports -- local, state, national, or international - provide information about people that is valuable in assessing their health status.	learn about the history of the census. What data were collected in the 1970 census? Why?	Cen ite fig mar inc ite This ly pro pro cia var inv and def bil
II. Epidemiological Method			
A. Aims and purposes	It is necessary to describe and analyze disease distribution and occurrence according to such variables as age, sex, race, etc., so that preventive or control programs can be developed. The study of the characteristics and interactions of agent, host, and environmental factors helps determine the cause of disease, disability, health problems, defect, and death.	Contact your local health officer for information and material on preventive and control programs, for such diseases as rheumatic fever, phenylketonuria, polio, and diabetes. The epidemiology of automobile accidents may be undertaken in conjunction with the driver education teacher. Immunization programs (tetanus, measles, smallpox, etc.) may be researched and discussed in buzz	Pri stu pre the sit sis of dete al aid must inf com abo tra inf

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Census reports -- local, state, national, or international - provide information about people that is valuable in assessing their health status.	Learn about the history of the census. What data were collected in the 1970 census? Why?	Census data include such items as: population figures by race, age, sex, marital status, education, income, occupation, housing items, and many others. This information is extremely useful to health planning, projecting, and developing programs, and to statisticians in studying the various ecological factors involved in the distribution and occurrence of disease, defect, disability, debility, and death.
It is necessary to describe and analyze disease distribution and occurrence according to such variables as age, sex, race, etc., so that preventive or control programs can be developed. The study of the characteristics and interactions of agent, host, and environmental factors helps determine the cause of disease, disability, health problems, defect, and death.	Contact your local health officer for information and material on preventive and control programs, for such diseases as rheumatic fever, phenylketonuria, polio, and diabetes. The epidemiology of automobile accidents may be undertaken in conjunction with the driver education teacher. Immunization programs (tetanus, measles, smallpox, etc.) may be researched and discussed in buzz	Primarily, epidemiological studies are undertaken to prevent further spread of the immediate hazardous situation. Once the diagnosis of the etiology (cause) of the outbreak has been determined, through clinical diagnosis and laboratory aids, the epidemiologist must find the source of infection. This requires comprehensive information about all possible modes of transmission of the type of infection under scrutiny.

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	Epidemiology has aided in improving medical care and providing guidance for community health programs. Epidemiology provides the means for understanding local patterns of disease, so that individual therapy or community control measures may be more specifically and economically directed.	groups for comparison of differences and similarities. These are all results of epidemiological research. Make a list of the health resources in your community. What are their functions?	
B. The epidemiological approach in scientific research	The epidemiological approach in scientific research is the application of the scientific method to the study of the conditions, situations, and diseases affecting man's health and welfare. 1. Definition of the problems and clarification of objectives include: . nature, extent, and significance of the problem . framing of specific questions . statement of immediate and ultimate objectives . explanation of terms . statistical collaboration 2. Appraisal of existing information on the subject: . search literature and other sources for data . classification and organization of data	Suggested reading: *Epidemiologic approach to the study of primary hypertension* by E. Gurney Clark, M.D. For other case examples refer to the index volume of the *American Journal of Public Health*. Possible selections are: Smoking Accidents Poisonings Suicides Drug Abuse	The demi prob grou is u to n Henc tion sole The (siz (imp at h unde fini insu vati unde goal esse commu barri nica tica

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Epidemiology provides the means for understanding local patterns of disease, so that individual therapy or community control measures may be more specifically and economically directed.	Make a list of the health resources in your community. What are their functions?	
The epidemiological approach in scientific research is the application of the scientific method to the study of the conditions, situations, and diseases affecting man's health and welfare.	Suggested reading: *Epidemiologic approach to the study of primary hypertension* by E. Gurney Clark, M.D.	The application of the epidemiological approach to problems pertaining to groups of individuals also is used to gain solutions to nonepidemic problems. Hence, the focus of observation need not be directed solely at a population.
1. Definition of the problems and clarification of objectives include: . nature, extent, and significance of the problem . framing of specific questions . statement of immediate and ultimate objectives . explanation of terms . statistical collaboration	For other case examples refer to the index volume of the *American Journal of Public Health*. Possible selections are: Smoking Accidents Poisonings Suicides Drug Abuse	The nature (kind), extent (size), and significance (importance) of the problem at hand must be thoroughly understood from start to finish by all involved to insure uniformity of observations. That everyone understands the purposes, goals, and terminology is essential to free flowing communication without barriers. Recruiting technical assistance in statistical collaboration must be
2. Appraisal of existing information on the subject: . search literature and other sources for data . classification and organization of data		

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
	critical appraisal of existing data	Have students organize into several groups of 4 or 5 in each group. Using data already available, have each group study these data, organize them into meaningful categories, and interpret these data in view of the epidemiological approach herein described. Students should share their results with the rest of the class.	done of re The p are t on th cance evalu exist separ and t knowl lem. ture as we tion arran aspec allow of th a who revea and p makin gener
	3. Formulation of hypotheses: After gathering and analyzing the data, describe, within testable limits, what you think has caused or contributed to the cause of the problem and how you can solve the problem. 4. Testing of hypotheses: This may be conducted in the laboratory, the hospital, or the community.	Data related to the venereal diseases, smoking and health, drug abuse, among others, may be used for this experience.	A hyp mulat possi based and a Testi inclu plann inves is to It ma hospi

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critical appraisal of existing data	Have students organize into several groups of 4 or 5 in each group. Using data already available, have each group study these data, organize them into meaningful categories, and interpret these data in view of the epidemiological approach herein described. Students should share their results with the rest of the class.	done in the initial stages of research. The purposes of this step are to secure further data on the nature and significance of the problem, to evaluate critically the existing evidence, to separate fact and theory, and to reveal gaps in knowledge about the problem. This entails literature research, and reports, as well as their classification to permit an orderly arrangement of related aspects. Such arrangement allows critical evaluation of the collected data, as a whole, eliminating errors, revealing new knowledge, and providing a basis for making inferences and generalizations.
3. Formulation of hypotheses: After gathering and analyzing the data, describe, within testable limits, what you think has caused or contributed to the cause of the problem and how you can solve the problem. 4. Testing of hypotheses: This may be conducted in the laboratory, the hospital, or the community.	Data related to the venereal diseases, smoking and health, drug abuse, among others, may be used for this experience.	A hypothesis must be formulated as thoroughly as possible and should be based upon needs, interests, and available resources. Testing the hypothesis includes the details of planning and executing the investigation. The object is to verify the hypothesis. It may take place in the hospital, laboratory, or

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
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	5. Conclusions and practical application: This involves evaluation of the results.	What kinds of difficulties did the groups have? How are these overcome? Invite an epidemiologist to class to discuss his work in disease control and prevention in relation to epidemiology. What other methods does he use? Why?	Onc tes con dev the
III. Factors That Influence the Occurrence, Distribution, Development, Control, and Prevention of Disease, Disability, Defect, and Death.			
A. Host factors	Host factors are those elements that influence health status which relate to the individual or group.		

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		community. Detailed plans for collection of information (sampling methods and size, controls, location and time factors, and training personnel who will collect the data) need to be written into the design. The classification, organization, tabulation, and analysis of data then can be done.
5. Conclusions and practical application: This involves evaluation of the results.	What kinds of difficulties did the groups have? How are these overcome? Invite an epidemiologist to class to discuss his work in disease control and prevention in relation to epidemiology. What other methods does he use? Why?	Once the hypothesis has been tested and a preventive or control program has been developed, evaluation of the outcome remains.
Host factors are those elements that influence health status which relate to the individual or group.		

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1. Heredity and health	The role of heredity in determining health status is extremely complex and dependent, in part, upon the interaction with environmental variables.	Make a list of diseases and defects which: 1. Are known to be solely hereditary 2. Are suspected to have a hereditary basis 3. Are thought to be congenital 4. "Run" in families Distinguish between each of the above.	Gene effe path by e feel a ge resu in p hydr Bioc gene dete boli the body reac onse comm dise and
	Many individuals generally confuse and interchange such terms as hereditary, congenital, and familial.	Why are the terms in the concept frequently confused? Why do misconceptions persist?	A di norm to h cond defe refe cond birt in t meta fect ment

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
The role of heredity in determining health status is extremely complex and dependent, in part, upon the interaction with environmental variables.	Make a list of diseases and defects which: 1. Are known to be solely hereditary 2. Are suspected to have a hereditary basis 3. Are thought to be congenital 4. "Run" in families Distinguish between each of the above.	Genes tend to produce their effects through metabolic pathways that are controlled by enzymes. Some scientists feel that all diseases have a genetic component and result from hereditary flaws in protein, fat, or carbohydrate metabolism. Biochemical processes under genetic control help to determine individual metabolic variations related to the functioning of vital body organs and systems, reactions to stress, the onset and severity of communicable and chronic disease; and health, aging, and longevity.
Many individuals generally confuse and interchange such terms as hereditary, congenital, and familial.	Why are the terms in the concept frequently confused? Why do misconceptions persist?	A disease, defect, or abnormality is considered to be <u>hereditary</u> if such condition is caused by a defective gene. <u>Congenital</u> refers to the fact that the condition was present at birth. It may be acquired in the uterus by virtue of metabolic, hormonal, infectious toxin, environmental, or other factors.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEME FO
	The fact that a condition is congenital (present at birth) or familial (appears in the family) does not necessarily mean that it is hereditary (genetically transmitted).	Discuss how various behavioral traits and styles of living are related to health and disease. - Why do some conditions tend to "run in families"? - What part does heredity play? Habits of living? Combinations of factors?	Behavio to cert deficie medical pation, the ris contrac disease Example . Coro and die suming . Lung . Chil and can Mothers their i incide This ma hormona . Pres disease
	Many aspects of genetic study have direct application for public health activities.	Investigate what genetic counseling services, if any, are available in your community. What do these services do? How long have they been in existence? Whom do they serve?	The pre material is of c short t and lon effects
	Radiation is but one of the forces capable of affecting genetic material through mutation.	Read books such as *Lucky Dragon #5* and *Hiroshima*, listed in the bibliography.	A host identifi effects found i

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
The fact that a condition is congenital (present at birth) or familial (appears in the family) does not necessarily mean that it is hereditary (genetically transmitted).	Discuss how various behavioral traits and styles of living are related to health and disease. - Why do some conditions tend to "run in families"? - What part does heredity play? Habits of living? Combinations of factors?	Behavioral traits peculiar to certain families (dietary deficiencies, lack of medical care, habits, occupation, etc.) may increase the risk of the members contracting certain diseases. Examples: . Coronary heart disease and dietary habits of consuming food rich in fat . Lung cancer and smoking . Child rearing practices and cancer of the breast. Mothers who breast feed their infants have a lower incidence of breast cancer. This may be related to a hormonal factor. . Presence of respiratory disease among coal miners
Many aspects of genetic study have direct application for public health activities.	Investigate what genetic counseling services, if any, are available in your community. What do these services do? How long have they been in existence? Whom do they serve?	The presence of radioactive materials in the environment is of concern because of short term (medical) effects and long term (genetic) effects.
Radiation is but one of the forces capable of affecting genetic material through mutation.	Read books such as *Lucky Dragon #5* and *Hiroshima*, listed in the bibliography.	A host of chemical substances identified through their effects in animals also are found in man's environment.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
2. Heredity and disease	Although the ranking order of our major causes of death has undergone a dramatic change since 1900, heredity has not been a primary factor in this change.	Have students develop a list of the 10 major causes of death in 1900 and compare these with the 10 major causes of death today, for all ages. What are the etiologies of these diseases? (See chart 1 in the appendix.)	In were za, hea heme ranl dise can nan acc pne
	In some diseases, such as Huntington's chorea, the genetic component is quite explicit. In others, such as the communicable diseases, the environmental factors appear to predominate. Between these two extremes, the environmental and genetic factors operate with varying degrees of importance.	Are genetic diseases automatic? Explain. How has our environment changed in the past 50 years to help eliminate some diseases? How has it changed to contribute to an increase in some diseases? Have we actually been creating new diseases? Explain.	The past unde char majo The popu sign past envi more haza and cond uals is f fere asse the incr in r its huma is a by a

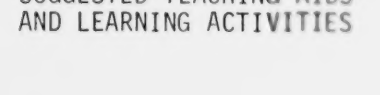
MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Although the ranking order of our major causes of death has undergone a dramatic change since 1900, heredity has not been a primary factor in this change.	Have students develop a list of the 10 major causes of death in 1900 and compare these with the 10 major causes of death today, for all ages. What are the etiologies of these diseases? (See chart 1 in the appendix.)	In 1900, the major killers were pneumonia and influenza, tuberculosis, enteritis, heart disease, and cerebral hemorrhage. Today, in ranking order they are: diseases of the heart, cancers and other malignancies, cerebral hemorrhage, accidents, influenza, and pneumonia. The ranking order over the past 68 years would not have undergone such a dramatic change if heredity were the major factor.
In some diseases, such as Huntington's chorea, the genetic component is quite explicit. In others, such as the communicable diseases, the environmental factors appear to predominate. Between these two extremes, the environmental and genetic factors operate with varying degrees of importance.	Are genetic diseases automatic? Explain. How has our environment changed in the past 50 years to help eliminate some diseases? How has it changed to contribute to an increase in some diseases? Have we actually been creating new diseases? Explain.	The hereditary makeup of our population has not changed significantly during the past 68 years, only the environment. However, the more we eliminate the worst hazards in our environment and the more we equalize conditions for all individuals, the more chance there is for the inherent differences in individuals to assert themselves. Thus, the role of heredity becomes increasingly more important in respect to disease and its possible effects on humans. Huntington's chorea is a mental disorder caused by a single dominant gene.

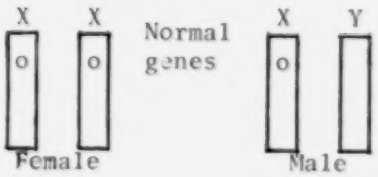
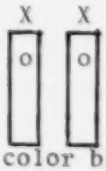
OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
			The phys cally
		Have students read and report about the role of heredity in specific diseases. Read: *Your heredity and environment* by Amran Scheinfeld.	A ge sugg for hered follo 1. Th direc envir small (the diab rare canc host 2. Th condi which devel under ronme (some arter arter possi disea metab 3. Th influ some the c disea that fecti vidua
	Some scientists feel that all diseases have a genetic component.		

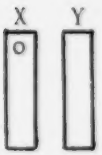
MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		The individual deteriorates physically and psychologically.
	Have students read and report about the role of heredity in specific diseases. Read: *Your heredity and environment* by Amran Scheinfeld.	A general classification suggested by Scheinfeld for discussing the role of heredity in disease is as follows: 1. Those diseases most directly inherited in which environment plays only a small part in causation, (the majority of cases of diabetes mellitus, some very rare forms of cancer such as cancer of the eye, and a host of rare conditions). 2. Those diseases which are conditionally inherited in which the individual will develop the disease only under certain adverse environmental circumstances, (some types of heart and arterial diseases including arteriosclerosis and possibly rheumatic heart disease, plus a number of metabolic disorders). 3. Those diseases which are influenced by heredity in some manner. This may be the case for most of our diseases. It is possible that for many of our infectious diseases some individuals may have inherited
Some scientists feel that all diseases have a genetic component.		

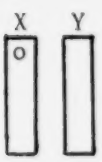
OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			con and ron may oth
3. Sex and health	Sex is one of the genetic factors that governs life expectancy.	Have students compose a chart showing the sex differences, in terms of the causes of death during infancy. Discuss why these differences exist. Obtain data from "Sex differences in causes of death during infancy..." *Vital Statistics of the U.S.*	In life whi whi tio exc mal 195 mal 190
		Compare and contrast the differences in life expectancy between the sexes in 1900 and today. Discuss why the gap has widened.	
	The existing higher life expectancy of the female appears to stem from some inherent advantage possessed by the female in combating disease and stress that is able to assert itself with improvements in the environment.		
	Evidence that the extra margin of female longevity is conditioned by the environment is seen in underdeveloped countries. The worse the	Make a list of diseases and defects which appear to be sex-linked.	In life sex the fem

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		constitutional weakness, and given the proper environmental circumstances they may become easier prey than others to infection.
Sex is one of the genetic factors that governs life expectancy.	Have students compose a chart showing the sex differences, in terms of the causes of death during infancy. Discuss why these differences exist. Obtain data from "Sex differences in causes of death during infancy..." *Vital Statistics of the U.S.* Compare and contrast the differences in life expectancy between the sexes in 1900 and today. Discuss why the gap has widened.	In 1965, the expectation of life at birth was 74.7 for white females and 67.6 for white males. Thus, expectation among white females exceeds that for white males by 7.1 years. In 1956, females outlived males by 6.4 years, and in 1900, by only 2.9 years.
The existing higher life expectancy of the female appears to stem from some inherent advantage possessed by the female in combating disease and stress that is able to assert itself with improvements in the environment.		
Evidence that the extra margin of female longevity is conditioned by the environment is seen in underdeveloped countries. The worse the	Make a list of diseases and defects which appear to be sex-linked.	In 1963, in Bolivia, the life expectancy of both sexes was 49.7 years. Hence, the innate advantage of the female could not assert

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
	living and health conditions, as reflected in higher death rates and lower life expectancies, the smaller is the excess of female over male life expectancy.		itsel envir affec Also, expec 45.2 femal more ment, femal inher dence advan femal
	The male is more likely to inherit sex-linked diseases and defects.	Color blindness (sex-linked defect)  Why is the male more apt to inherit sex-linked conditions? Normal gene Defec ve gene for color blindness. Woman is not color blind but is a carrier.	Sex-li from on th concep ceive (one male chromo and th Thus, vulner there gene o chromo effect causes To pro fect i defect The fe fectiv are th normal

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
living and health conditions, as reflected in higher death rates and lower life expectancies, the smaller is the excess of female over male life expectancy.		itself because of the poor environmental conditions affecting both sexes. Also, in India, the life expectancy for the male is 45.2 years and for the female, 46.6 years. The more we improve the environment, the better able the female is to assert her inherent advantage as evidenced by the 7.1-year advantage that the U.S. female possesses.
The male is more likely to inherit sex-linked diseases and defects.	Color blindness (sex-linked defect)  Why is the male more apt to inherit sex-linked conditions? Normal gene  Defective gene for color blindness. Woman is not color blind but is a carrier.	Sex-linked conditions result from defective genes carried on the X chromosome. At conception, the female received two X chromosomes (one from each parent). The male receives only one X chromosome from his mother and the Y from his father. Thus, the male is more vulnerable to defects since there is no corresponding gene on the opposite Y chromosome to neutralize the effects of the gene which causes the defect. To produce a sex-linked defect in the male, only one defective gene is needed. The female needs two defective genes as the chances are that there will be a normal gene on the other X

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
		 Male defective gene No corresponding site on Y chromosome to offset the defective gene. Man is color blind. Fathers can transmit color-blindness to daughters only, as it is carried on the X chromosome and not the Y. Hemophilia is another disorder which can be analyzed and discussed with regard to its sexual and genetic implications.	chrom the tions defe and sight corn optic and (duc
	Differences in chemical functioning appear to endow the female with certain advantages in resisting and fighting disease.	Present arguments show that, in reality, the male is the "weaker sex." (Genetically speaking). Why? Refer to Amram Scheinfeld, op. cit.	The the the role the porti estr of t fema chem due chem menst bear that her dise male

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	 Male defective gene No corresponding site on Y chromosome to offset the defective gene. Man is color blind. Fathers can transmit color-blindness to daughters only, as it is carried on the X chromosome and not the Y. Hemophilia is another disorder which can be analyzed and discussed with regard to its sexual and genetic implications.	chromosome to neutralize the effects. Other conditions that are sex-linked defects include hemophilia and some forms of near-sightedness, enlarged cornea, defective iris, optic atrophy, nystagma, and muscular dystrophy (duchenne type).
Differences in chemical functioning appear to endow the female with certain advantages in resisting and fighting disease.	Present arguments show that, in reality, the male is the "weaker sex." (Genetically speaking). Why? Refer to Amram Scheinfeld, op. cit.	The clearest evidence for the greater longevity of the female appears in the role of the sex hormones: the female produces proportionately more of the estrogens and the male more of the androgens. The female tends to be biochemically more variable due to changes in body chemistry that occur during menstruation and childbearing. It is possible that this variability helps her to adjust to stress and disease better than her male counterpart.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			The dise with (est peri of a not horm
		How may this difference of diseases of the sexes be explained? What part does biological make-up play? Differences in daily activity? Childhood activities?	The mort from male caus syst fema death of t Diab the more third die
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MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		The death rate from heart disease among men treated with female hormones (estrogens) after a 5-year period was about half that of a control group who did not receive the female hormones.
	How may this difference of diseases of the sexes be explained? What part does biological make-up play? Differences in daily activity? Childhood activities?	The female has a lower mortality rate at all ages from most diseases than the male. When we classify causes of death into body systems, we find that the female has a higher overall death rate from disorders of the endocrine system. Diabetes mellitus is one of the few diseases that kills more women. (About one-third more women than men die from diabetes.) However, even as we find the sociocultural differences between the sexes becoming more similar with respect to work, smoking, behavior, etc., we also find that the differences in life expectancy are increasing between the sexes, instead of narrowing. This suggests that the hereditary and biochemical differences must exert a powerful influence that tends to favor the female more than the male.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
4. Race and health	Differences in life expectancy between whites and nonwhites still exist today. As the nonwhite population makes continued economic and social advances the differences in life expectancy between the races should diminish.	Have students compare the life expectancy figures for the white and nonwhite population. Discuss: 1. Why do these differences exist in life expectancy? 2. Why are the differences between the sexes in life expectancy not as great as in the white population? 3. What happens to these differences when one controls for income?	In 19 tancy was and years white In 19 tancy was years diffe the the the Racia expec influ High- high- expec crepa high- black
5. Occupation and health	Higher economic and social groups tend to have lower mortality rates and a longer life expectancy. Lower socioeconomic groups tend to have higher mortality rates and lower life expectancy.	Discuss how occupation and life expectancy are related.	Scien socia the of a group the miner and

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Differences in life expectancy between whites and nonwhites still exist today. As the nonwhite population makes continued economic and social advances the differences in life expectancy between the races should diminish.	Have students compare the life expectancy figures for the white and nonwhite population. Discuss: 1. Why do these differences exist in life expectancy? 2. Why are the differences between the sexes in life expectancy not as great as in the white population? 3. What happens to these differences when one controls for income?	In 1900, the life expectancy for the American Negro was 32.5 years for the male and 35 for the female (16 years less than for the white population). In 1965, the life expectancy for the nonwhite male was 61.1 years and 67.4 years for the female (a difference of 6.5 years for the male and 7.3 years for the female as compared to the white population). Racial differences in life expectancy are strongly influenced by income level. High-income blacks' and high-income whites' life expectancy show less discrepancy than that for high-income and low-income blacks.
Higher economic and social groups tend to have lower mortality rates and a longer life expectancy. Lower socioeconomic groups tend to have higher mortality rates and lower life expectancy.	Discuss how occupation and life expectancy are related.	Scientists, teachers, and social workers tend to have the highest longevity rates of all of the occupational groups. At the low end of the longevity slide we find miners, musicians, tailors, and taxi drivers.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
	Environmental factors such as differences in occupation, habits, and behavior may predispose the male to greater risks with respect to disease and death.	Have students compare and contrast the mortality and morbidity rates from selected diseases and accidents in various occupations. Have students interpret and analyze why the differences exist.	Diff betw tion not the to t and the thei stud soci to p ent econ soci to b medi orie medi econ
	The morbidity and mortality rates of workers in some occupations are influenced directly by exposure to accidents and dust.	Insurance companies may have data relative to occupational diseases and injuries. Compare and categorize various occupations according to their disease epidemiology. (Miners, general factory workers, chemical workers, teachers, truck drivers, dentists, lawyers, etc.).	Envi tion dire man. studi work quant the t is mu avera in ot silic lungs air c of si commo cerne ing,

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Environmental factors such as differences in occupation, habits, and behavior may predispose the male to greater risks with respect to disease and death.	Have students compare and contrast the mortality and morbidity rates from selected diseases and accidents in various occupations. Have students interpret and analyze why the differences exist.	Differences in longevity between the various occupational groups may be due not only to the nature of the work involved but also to the attitudes, habits, and living conditions of the personnel engaged in their occupations. Various studies indicate that lower socioeconomic groups tend to perceive health differently than higher socioeconomic groups. Lower socioeconomic groups tend to be delayers in seeking medical care and are less oriented towards preventive medicine than higher socioeconomic groups.
The morbidity and mortality rates of workers in some occupations are influenced directly by exposure to accidents and dust.	Insurance companies may have data relative to occupational diseases and injuries. Compare and categorize various occupations according to their disease epidemiology. (Miners, general factory workers, chemical workers, teachers, truck drivers, dentists, lawyers, etc.).	Environmental social conditions may by themselves directly cause disease in man. Epidemiological studies showed that among workers exposed to large quantities of silica dust, the tuberculosis death rate is much higher than the average for people employed in other occupations. Also, silicosis, a disease of the lungs caused by breathing air containing large amounts of silica dust, is more common in occupations concerned with mining, quarrying, or drilling. High

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUP
6. Psychological and social factors and health			
a. Psychological factors	Psychological factors are components related to the will or mind.	Refer to Chart 2 in the appendix.	
b. Social factors	Social factors relate to the interaction of the individual and the group.	Form small groups to discuss the psychological and social factors involved in selected current psychosocial problems, for example, drug abuse, crime, teen-age out-of-wedlock pregnancies.	

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		accidental death rates are observed in the mining, quarrying, and oil and gas industries. Construction and agricultural workers also have higher-than-average accidental death rates.
1l Psychological factors are components related to the will or mind. Social factors relate to the interaction of the individual and the group.	Refer to Chart 2 in the appendix. Form small groups to discuss the psychological and social factors involved in selected current psychosocial problems, for example, drug abuse, crime, teen-age out-of-wedlock pregnancies.	Psychological and social factors involve the individual and the group. There are specific needs, values, codes, norms, etc., that concern each; yet, they are quite apt to be different for the individual when they relate to him alone versus his interactions with others in a group situation. Behavior by the individual and by the group is affected by social and psychological factors. These complex factors are only two of many influences on behavior, as can be seen in the behavior model in Chart 2, p. 48.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
7. Cultural effects on health	Culture is a way of thinking, feeling, and believing. It is the group's knowledge stored up for future use and applies to any number of health issues. Culture varies in its patterns and meanings for different social units, depending upon the history of the social unit in perceiving and dealing with life's issues in different settings.	Assign groups to research and report on the cultural influences of the following topics: . psychiatric treatment . pain reaction . patient care (seeking and utilizing medical care) . public health programs . dental care	An e affe most ample Vari (eth diff i.e. it d fere alco Iris ence than in p atti with fami have on t tion resp same appl cult ness
	Differences in health, attitudes, beliefs, values, and behavior are found to exist in low-income groups.	Have students report on the health problems of minority groups in the United States. Read: *Low-income life styles* by L. H. Irelan.	Low- Unit chara certa son incon Lowe 1. P and many

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Culture is a way of thinking, feeling, and believing. It is the group's knowledge stored up for future use and applies to any number of health issues. Culture varies in its patterns and meanings for different social units, depending upon the history of the social unit in perceiving and dealing with life's issues in different settings.	Assign groups to research and report on the cultural influences of the following topics: . psychiatric treatment . pain reaction . patient care (seeking and utilizing medical care) . public health programs . dental care	An example of how culture affects health can be seen most clearly by an example such as alcoholism. Various cultural groups (ethnic groups) react differently to alcohol, i.e., they regard and use it differently. This difference is shown in their alcoholism rates. The Irish, for example, experience higher alcoholism rates than the Jews. This is due in part to their differing attitudes and experiences with alcohol. Religion and familial values and uses have a definite influence on the meaning and perception of alcohol in their respective cultures. This same reasoning can be applied to the way various cultures regard fear, sickness, etc.
Differences in health, attitudes, beliefs, values, and behavior are found to exist in low-income groups.	Have students report on the health problems of minority groups in the United States. Read: *Low-income life styles* by L. H. Irelan.	Low-income groups in the United States are generally characterized by possessing certain factors in comparison to the middle and upper income groups. Lower income groups tend to: 1. Possess higher morbidity and mortality rates for many diseases.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
	Attitudes of fatalism and helplessness, a preference for personalized relationships with the subprofessional, and the materialistic values of the lower economic groups tend to exert a forceful impact on influencing their health behavior.		The fever ease tends creas 2. Ha infor and ceive and 3. De "abi ing." canne respe cons 4. Be lize measu stud are thei agai 5. De healt is us stage cess 6. Pa nonpa healt group a la healt 7. So fess They the perso
	Individuals who have a limited income and generally little hope of improving their economic conditions perceive health and health services in a different perspective.	Invite an OEO, Welfare, or a social worker to your class to discuss the health problems and needs of the lower economic groups. Discuss the effects of medicaid on the health practices of the poor. Have students read *Mirage of health* by Rene Dubos.	

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Attitudes of fatalism and helplessness, a preference for personalized relationships with the subprofessional, and the materialistic values of the lower economic groups tend to exert a forceful impact on influencing their health behavior.		The incidence of rheumatic fever, cancer, heart disease, and diabetes mellitus tends to rise with decreasing social class. 2. Have less accurate health information. Loss of teeth and dental decay are perceived of as being incurable and unavoidable. 3. Define health as the "ability to continue working." Only when the poor cannot fulfill their job responsibilities do they consider themselves sick. 4. Be less likely to utilize preventive health measures. Immunization studies indicate that they are less likely to have their children immunized against specific diseases. 5. Delay longer in seeking health services. Treatment is usually begun at a late stage in the disease process. 6. Participate little or be nonparticipants in community health programs. Poverty groups are characterized by a lack of utilization of health services. 7. Seek advice of subprofessionals on health matters. They are more likely to seek the advice of some person other than a medical
Individuals who have a limited income and generally little hope of improving their economic conditions perceive health and health services in a different perspective.	Invite an OEO, Welfare, or a social worker to your class to discuss the health problems and needs of the lower economic groups. Discuss the effects of medicaid on the health practices of the poor. Have students read *Mirage of health* by Rene Dubos.	

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEM F
			doctor distan with l health apprai tioner determ select 8. Be hazard enviro 9. Pla value given necess
	Differences still exist today with respect to infant and maternal mortality rates between the races.	Discuss what basic factors play a role in determining the differences in death rates that exist between white and nonwhite groups.	In 196 tality live b compar white matern 100,00 was 83 21.0 f
	Health programs are frequently impeded by the failure of health personnel to understand the cultural system of the community they are working in. Health programs need to be related to the cultural system in which they operate. They must relate to what is familiar to the people.	Discuss why poor communication is one of the major barriers to public health programs.	Proble are on barrie public servic Langua well a values to com prehen health

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		doctor. Awareness of social distance is probably linked with lack of utilization of health services. Subjective appraisal of the practitioner's competencies often determines who he will select for medical care. 8. Be exposed to more health hazards by virtue of their environment and occupation. 9. Place health low on their value system. Priority is given to the material necessities of life.
Differences still exist today with respect to infant and maternal mortality rates between the races.	Discuss what basic factors play a role in determining the differences in death rates that exist between white and nonwhite groups.	In 1965, the infant mortality rate per 1000 Negro live births was 40.3 as compared to 21.5 for the white population. The maternal mortality rate per 100,000 Negro live births was 83.7 as compared to 21.0 for white population.
Health programs are frequently impeded by the failure of health personnel to understand the cultural system of the community they are working in. Health programs need to be related to the cultural system in which they operate. They must relate to what is familiar to the people.	Discuss why poor communication is one of the major barriers to public health programs.	Problems in communications are one of the major barriers to successful public health programs and services. Language difficulties, as well as differences in values, complicate attempts to communicate and to comprehend the efforts of health workers.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	The culture acts as a filter through which the communication message must pass if it is to be received and understood.		For eff und as
B. Agent factors	Agent factors are those elements and substances, both living and nonliving, which can cause or continue a disease process in a susceptible host under certain environmental conditions.	Have students read, list, and report those diseases falling in this category. Reference: *Control of communicable diseases in man*, edited by John E. Gordon, M.D.	Bio of dec as . A pri oth mos for fev . H wor wor cau sch sch . H ani as . H dit coc mos . H vis cau syp pne . H mos sit man
1. Classes of agent factors			
a. Biologic agents	Biologic agents are living disease agents such as Arthropods (insects), Helminths (worms), Protozoa (microscopic parasites), Fungi (yeasts and molds), Bacteria (single celled organisms), Rickettsiae (smaller than bacteria - intracellular parasites,) Viruses (smallest known living agents of disease).	Read: *Microbe hunters* by Paul DeKruif. Show and discuss the film: *Anatomy of a disease.*	

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
The culture acts as a filter through which the communication message must pass if it is to be received and understood.		For a message to have an effect, it must be received, understood, and perceived as cogent and reasonable.
Agent factors are those elements and substances, both living and nonliving, which can cause or continue a disease process in a susceptible host under certain environmental conditions.	Have students read, list, and report those diseases falling in this category. Reference: *Control of communicable diseases in man*, edited by John E. Gordon, M.D.	Biologic agents, parasites of man, are classified in decreasing order of size as follows:
Biologic agents are living disease agents such as Arthropods (insects), Helminths (worms), Protozoa (microscopic parasites), Fungi (yeasts and molds), Bacteria (single celled organisms), Rickettsiae (smaller than bacteria - intracellular parasites,) Viruses (smallest known living agents of disease).	Read: *Microbe hunters* by Paul DeKruif. Show and discuss the film: *Anatomy of a disease*.	. Arthropods are important primarily as vectors of other disease agents, i.e., mosquitoes carry the agent for malaria and yellow fever. . Helminths include: hookworms, tapeworms, round worms (Trichinella spiralis causes trichinosis), and schistosomes, etc. (causes schistosomiasis). . Protozoa as microparastic animals cause such diseases as amebiasis, malaria, etc. . Fungi may produce conditions as actinomycosis, coccidiomycosis, hystoplasmosis, etc. . Bacteria, generally visible under a microscope, cause diphtheria, gonorrhea, syphilis (spirochete), pneumonia, etc. . Rickettsiae, smaller than most bacteria, are parasites of arthropods and man and are responsible

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEME FO
			for en Rocky fever, mitted arthro . Virus known requir propag such d polio, yellow
b. Nutrient agents	Nutrient agents are nonliving chemical substances necessary to sustain life, such as carbohydrates, proteins, fats, vitamins, minerals, water.	Have students read and report on the various problems associated with causation by nutrient agents. (1) *Nutrition science and you* by Olaf Mickelsen. (2) *Obesity and health*, U.S. Dept. of H.E.W., P.H.S. Question for research and discussion: What are the effects of insufficient or excessive intake of vitamins, fats, proteins?	Nutrie . Carbo may ar (obesi (starv utiliz . Prote essenti lead t balance . Fats stored, weight . Vitam ficient result bolic a ficienc ample vitamin (too mu . Miner for exa anemia.

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		for endemic typhus fever, Rocky Mountain spotted fever, etc. All are transmitted by means of an arthropod vector. . Viruses, the smallest known agents of disease, require living cells for propagation. They cause such diseases as: smallpox, polio, influenza, measles, yellow fever, etc.
Nutrient agents are nonliving chemical substances necessary to sustain life, such as carbohydrates, proteins, fats, vitamins, minerals, water.	Have students read and report on the various problems associated with causation by nutrient agents. (1) *Nutrition science and you* by Olaf Mickelsen. (2) *Obesity and health*, U.S. Dept. of H.E.W., P.H.S. Question for research and discussion: What are the effects of insufficient or excessive intake of vitamins, fats, proteins?	Nutrient agents include: . Carbohydrates - Disease may arise from excess (obesity), deficiency (starvation), or improper utilization (diabetes). . Proteins - Lack of essential amino acids may lead to a nitrogen imbalance in the body. . Fats - When excesses are stored, it leads to overweight and obesity. . Vitamins - A diet deficient in a given vitamin results in a specific metabolic abnormality or deficiency disease, for example rickets (lack of vitamin D), hypervitaminosis (too much vitamin A or D). . Minerals - Lack of iron, for example, can cause anemia.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
			. Wat 2/3 o mass physi
c. Chemical agents	Chemical agents are those nonliving substances found outside of the host (gas, alcohol, drugs, etc.) and those produced inside the body (toxic substances).	Read and report on diseases and problems caused by chemical agents. Subject references: carbon monoxide poisoning, drug abuse and narcotics addiction, lead poisoning, poison ivy, etc.	Chemi types outsi endog insid genou (carb (lead (sili ticle drugs poiso etc. inclu diabe uremi
d. Physical agents	Physical agents are the nonliving forms of matter or energy that disorganize cell, tissue, and body function (radiation, heat, cold, pressure, humidity, sound, etc.).	Read and report on diseases and conditions caused by physical agents. Subject areas: radiation sickness, frostbite, caisson disease, etc.	Physi radia ness) (fros press sound etc.
2. Absence of known factors	The causes of many diseases are yet unknown.	Divide the class into several groups and have them list as many diseases of unknown cause as possible. Then compare the lists of the groups.	Many commo exist etiol commo perte tumor diso ment

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		. Water - composing about 2/3 of the total body mass - is required for many physiologic functions.
Chemical agents are those nonliving substances found outside of the host (gas, alcohol, drugs, etc.) and those produced inside the body (toxic substances).	Read and report on diseases and problems caused by chemical agents. Subject references: carbon monoxide poisoning, drug abuse and narcotics addiction, lead poisoning, poison ivy, etc.	Chemical agents are of two types: exogenous (arise outside of the host) and endogenous (are produced inside the host). Exogenous agents include gas (carbon monoxide), vapor (lead), mineral dusts (silica), air-borne particles, beverages (alcohol), drugs, acids, cosmetics, poison ivy, snake venom, etc. Endogenous agents include such things as diabetic acidosis and uremic poisoning.
Physical agents are the nonliving forms of matter or energy that disorganize cell, tissue, and body function (radiation, heat, cold, pressure, humidity, sound, etc.).	Read and report on diseases and conditions caused by physical agents. Subject areas: radiation sickness, frostbite, caisson disease, etc.	Physical agents include radiation (radiation sickness), heat (burns), cold (frostbite), atmospheric pressure (caisson disease), sound (loss of hearing), etc.
The causes of many diseases are yet unknown.	Divide the class into several groups and have them list as many diseases of unknown cause as possible. Then compare the lists of the groups.	Many major and minor, common and rare diseases exist that are of unknown etiology, for example: the common cold, essential hypertension, diabetes, tumors, many forms of mental disorders, and cancer, to mention a few. Although

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEM R
			resear to isc causat factor many c a myst
C. Environmental factors			
1. Necessities of a healthful environment	The essential factors of a healthful environment are: . clean air to breathe . clean water for drinking and recreational purposes . clean land to enjoy and live on . healthful housing . clean food to eat	The most likely sources for obtaining speakers on the physical environment are the county health department and the conservation department. A sociologist, if available, from your school or a nearby college could explain social theory and health.	
2. Housing and health	Incidence of disease, death, disability, crime, and accidents are higher for people living in substandard housing than those who live in adequate housing.	Read *Sociological studies of health and sickness* by Dorian Apple.	Every a dece living this r health 1960, dwelli York w substa 19.1 p ings i so lab subjec analys malnut medica also h

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		research is coming close to isolating specific causative and contributory factors of some diseases, many diseases still remain a mystery.
The essential factors of a healthful environment are: . clean air to breathe . clean water for drinking and recreational purposes . clean land to enjoy and live on . healthful housing . clean food to eat	The most likely sources for obtaining speakers on the physical environment are the county health department and the conservation department. A sociologist, if available, from your school or a nearby college could explain social theory and health.	
Incidence of disease, death, disability, crime, and accidents are higher for people living in substandard housing than those who live in adequate housing.	Read *Sociological studies of health and sickness* by Dorian Apple.	Every family has a right to a decent home and a suitable living environment. When this right is not fulfilled, health problems arise. In 1960, 15.4 percent of the dwellings in upstate New York were considered as substandard housing, while 19.1 percent of the dwellings in New York City were so labelled. This is not subject to statistical analysis, since poverty, malnutrition, and lack of medical care and education also have an effect on

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
a. Slum	A slum is a neighborhood in which dwellings lack: private inside toilet and bathing facilities, hot and cold running water, adequate heat, light, ventilation, quiet, clean air, and space for the number of persons housed.		Slum resu of e equi patt hous migr obso hous ment

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		health status, and it is difficult to isolate any one factor as having a cause-and-effect relationship to ill health. However, substandard housing is associated with increased rates of ill health. For example, juvenile delinquency is twice as high as the national average; mental illness is more prevalent (40 percent of patients in state mental institutions were from substandard housing areas according to one study); broken homes, prostitution, TB, infectious disease, crimes, fires, accidents, VD, pneumonia, and infant mortality and infant morbidity all have higher incidence in substandard housing areas. Life expectancy is even lower for these people.
A slum is a neighborhood in which dwellings lack: private inside toilet and bathing facilities, hot and cold running water, adequate heat, light, ventilation, quiet, clean air, and space for the number of persons housed.		Slums are said to be the result of: poverty, lack of education, social inequities and cultural patterns, substandard housing and neighborhoods, migration, indifference, obsolescence, lack of housing codes and enforcement, poor health services,

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
			and r costs
b. Blight	An area of no growth in which buildings are allowed to deteriorate is said to be in a condition of blight, ex., urban blight.		
3. Population growth and environmental planning	Planning for new housing needs necessitates concern for additional water supplies, solid waste collection and disposal, recreational facilities, schools, books, land, public services, streets, sewage treatment facilities, etc.	Assign a study project on "housing - conditions, needs, and plans for present and future development." Suggest that the following offices be visited: health department, housing and urban development, and other offices or commissions concerned with zoning and building codes. Show the film: *Population ecology*.	Popul maril Proje for 7 per y repla satis Every requi . add 100 gal . sol and 6,0 . rec for lei . sch tar new roo . lan for are . ser and

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		and relatively excessive costs.
An area of no growth in which buildings are allowed to deteriorate is said to be in a condition of blight, ex., urban blight.		
Planning for new housing needs necessitates concern for additional water supplies, solid waste collection and disposal, recreational facilities, schools, books, land, public services, streets, sewage treatment facilities, etc.	Assign a study project on "housing - conditions, needs, and plans for present and future development." Suggest that the following offices be visited: health department, housing and urban development, and other offices or commissions concerned with zoning and building codes. Show the film: *Population ecology*.	Population growth is primarily toward the suburbs. Projected indications are for 70,000 dwelling units per year in addition to replacement housing to satisfy growth needs. Every 1000 new people will require: . additional water supply, 100,000 to 200,000 gallons per day . solid waste collection and disposal, 4,000 to 6,000 lbs. per day . recreation facilities, for more people with more leisure time . schools, 4.8 new elementary classrooms and 3.6 new high school classrooms . land, 10 or more acres for schools, parks, play areas . services, 1.8 policemen and 1.5 firemen

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			. st th to sn . 10 . ai to $6 da po . se it to da . mo se in an pr
4. Interrelationship of factors in the physical environment	The interrelationship of environmental factors means that any single factor can affect one or more other factors, thus changing the total environment to the benefit or detriment of one's health.	Assign small groups to discuss the interrelationships of various physical environmental factors (refer to column four) in relation to one given factor. Each group could be given a different factor. Have each group report its results to the rest of the class afterwards.	Cons fact envi . wa . se wa . ho . re . ge . ai . zo . hi All affe For supp affe wast

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		. streets and roads, more than 1 mile, which have to be cleared of ice and snow and drained . 1000 new library books . air pollution, $20,000 to control sources and $65,000 to offset physical damage caused by air pollution . sewage treatment, facilities to handle 100,000 to 150,000 gallons per day . more autos, retail stores, service commercial and industrial areas, county and state parks, and private enterprises
The interrelationship of environmental factors means that any single factor can affect one or more other factors, thus changing the total environment to the benefit or detriment of one's health.	Assign small groups to discuss the interrelationships of various physical environmental factors (refer to column four) in relation to one given factor. Each group could be given a different factor. Have each group report its results to the rest of the class afterwards.	Consider the following factors in the physical environment: . water supply . sewage and other waste water disposal . housing . recreation . geology and soil . air pollution . zoning . highway construction All of these factors are affected by each other, For example, the water supply affects and is affected by sewage, solid waste disposal, and geology

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
			and s Housi zonin tion, and s etc. condi total ly af emoti being
5. Social environment	Social environment relates to societies, their cultures and subcultures, their groups and orders, persons and their relationships, objects, ideas, and all the meanings assigned to them that together comprise the social setting in which man transacts his affairs.	Pick a current health issue and assign a research project on the various viewpoints about the issue held by individuals, social groups, service organizations, racial groups, religious groups, political organizations, governmental organizations, etc. When the reports are summarized, bring out ways in which the individual is affected by, and affects, social opinion and action.	Socia said . the tio tio com rac cla . the of mem fam fac sta . the emb inc rol and . the val whi of . the mat able

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		and soil conditions. Housing is affected by zoning, geology, air pollution, water supply, sewage and solid waste disposal, etc. The lack of optimal conditions regarding the total environment negatively affects the physical, emotional, and social well-being of people.
Social environment relates to societies, their cultures and subcultures, their groups and orders, persons and their relationships, objects, ideas, and all the meanings assigned to them that together comprise the social setting in which man transacts his affairs.	Pick a current health issue and assign a research project on the various viewpoints about the issue held by individuals, social groups, service organizations, racial groups, religious groups, political organizations, governmental organizations, etc. When the reports are summarized, bring out ways in which the individual is affected by, and affects, social opinion and action.	Social environment may be said to include: . the density and composition of various populations, conceived as communities, ethnic and racial groups, and social classes . the organized human groups of which individuals are members, ranging from families, schools, and factories to nation-states . the socially defined roles embedded in such groups, including age and sex roles, and occupational and family roles . the shared symbols, values, laws, and norms which guide the behavior of individuals in groups . the technologies and material apparatus available to different groups

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			i p
a. Effects of social factors on health	Health is affected by social factors on an individual, as well as group, basis.		Soci heal . Ac in t many a ph geog . Pl the disc . De tion publ the carr prob . De soci to m
D. Interaction of agent, host, and environment	The interaction of agent, host, and environment concerns itself with conditions under which the agent, host, and environment affect each other to initiate a disease process.	Recommended film: *The epidemiology of staphylococcal infections.*	See Disc Cont
1. Mode of transmission	The mode of transmission is the mechanism by which disease agents are transported from the "source" to the host. This might be by:		
a. Contact transmission	Contact transmission involves direct or indirect contact with the infectious agent.	Students may list and discuss several diseases spread via contact	Cont by d touc

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		in various times and places.
Health is affected by social factors on an individual, as well as group, basis.		Social factors influence health in four ways: . Act as basic determinants in the distribution of many diseases. Disease is a phenomenon that varies geographically. . Play an important part in the etiology of many diseases . Define which health conditions shall be considered public health problems and the activities that may be carried out to meet these problems . Determine the response of society and the individual to many health problems
The interaction of agent, host, and environment concerns itself with conditions under which the agent, host, and environment affect each other to initiate a disease process.	Recommended film: *The epidemiology of staphylococcal infections.*	See, also, Strand IV, Disease Prevention and Control.
The mode of transmission is the mechanism by which disease agents are transported from the "source" to the host. This might be by:		
Contact transmission involves direct or indirect contact with the infectious agent.	Students may list and discuss several diseases spread via contact	Contact transmission may be by direct contact (by touching the source), by

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
		transmission (venereal disease, rabies, hookworm, etc.), and the means of controlling them.	indir conta by dr ing, fumes *Some by co disea plagu ringw
b. Air-borne transmission	Air-borne transmission refers to the infectious agent being transported through the air.	Students may list and discuss several diseases spread via air-borne transmission (sillicosis, tuberculosis, brucellosis, etc.), and the means of controlling them.	Air-b inclu sidue dust and r and g viole disea air-b culos cello anthr
c. Vector transmission	Vector transmission refers to the infectious agents being transported via an intermediary host - fly, flea, mosquito, tick, mite, etc.	Have students report on methods and instances of controlling the cycle of infection: . Avoidance, e.g., mosquito netting . Repellants, e.g., N, N-diethyl-m-tolumide . Insecticides, e.g., DDT, chlordane . Reducing breeding vectors, e.g., poison, mosquito spraying, baiting of rats	Vecto Arthr infec or de mater vecto fecte carri vecto quito agent virus venom

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	transmission (venereal disease, rabies, hookworm, etc.), and the means of controlling them.	indirect contact (touching contaminated objects), or by droplet spread (coughing, sneezing, smoke, fumes). *Some diseases transmitted by contact: venereal disease, whooping cough, plague, rabies, polio, ringworm, hookworm, etc.
Air-borne transmission refers to the infectious agent being transported through the air.	Students may list and discuss several diseases spread via air-borne transmission (sillicosis, tuberculosis, brucellosis, etc.), and the means of controlling them.	Air-borne transmission may include droplet nuclei (residue suspended in air), dust (from floors, soil), and radiation (alpha, beta, and gamma rays, ultraviolet, X-rays). Some diseases transmitted by the air-borne route: tuberculosis, psittacosis, brucellosis, sillicosis, anthrax, etc.
Vector transmission refers to the infectious agents being transported via an intermediary host - fly, flea, mosquito, tick, mite, etc.	Have students report on methods and instances of controlling the cycle of infection: . Avoidance, e.g., mosquito netting . Repellants, e.g., N, N-diethyl-m-tolumide . Insecticides, e.g., DDT, chlordane . Reducing breeding vectors, e.g., poison, mosquito spraying, baiting of rats	Vector transmission - Arthropods may transmit infection by biting through or depositing infective materials on the skin. The vector itself may be infected, or may only be a carrier of the agent. The vector might be a fly, mosquito, tick, flea, etc. The agent might be a bacterium, virus, rickettsia, snake venom, etc.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
		Show 16-mm, sound, color film: *Epidemiology of murine typhus.*	Some by ve mosqu fever flies dyser lice demi fleas plagu ticks Rocky fever fever
		Show and discuss the film: *Epidemiology of salmonellosis in man and animals.*	Vecto contr ing t There schem trans An ex malar eles man, tive Then, passi him. trans of is of th menta break form invol passa agent

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Show 16-mm, sound, color film: *Epidemiology of murine typhus.*	Some diseases transmitted by vectors include: mosquito - malaria, yellow fever, equine encephalitis flies - typhoid, bacillary dysentery lice - trench fever, epidemic typhus, pediculosis fleas - murine typhus, plague ticks - Colorado tick fever, Rocky Mountain spotted fever, Q fever, relapsing fever
	Show and discuss the film: *Epidemiology of salmonellosis in man and animals.*	Vector control - Vector control consists of breaking the cycle of infection. There are two ecological schemes. One is man-to-man transmission by a vector. An example is that of malaria in which the Anopheles mosquito bites one man, obtaining the causative agent from his blood. Then, it bites another man, passing the infection to him. In this type of vector transmission combinations of isolation and medication of the man and environmental attacks on the vector break the cycle. A second form of vector transmission involves animal-to-man passage of the etiological agent, as in Rocky Mountain

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
			spott insta roder is sc contr which voir to ma consi pelli ducin breed
d. Vehicle transmission and control	Vehicle transmission is an inanimate means of carrying an infectious agent.	Arrange for field trips to municipal water treatment plants and pasteurization plants. Have students report on various types of treatment of water and pasteurization. When you visit a milk pasteurization plant, note methods of pasteurization, cleanliness, storage.	Vehic clude food, produ of a sourc host. Vehic . Mil clude typho infec tis, dyser only been cessf borne paste tion milk ture of ti genic

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		spotted fever. In this instance a tick from a wild rodent bites the man. It is sometimes possible to control the alternate host, which serves as the reservoir of infection dangerous to man. Control action consists of avoiding, repelling, killing, and reducing the numbers of breeding vectors.
Vehicle transmission is an inanimate means of carrying an infectious agent.	Arrange for field trips to municipal water treatment plants and pasteurization plants. Have students report on various types of treatment of water and pasteurization. When you visit a milk pasteurization plant, note methods of pasteurization, cleanliness, storage.	Vehicle transmission includes conveyance by water, food, milk, and biological products (serum hepatitis) of a disease agent from a source (reservoir) to the host. Vehicle Control . Milk-borne diseases include typhoid fever, paratyphoid fever, streptococcal infections, gastro-enteritis, diphtheria, bacillary dysentery, etc. There is only one method that has been demonstrated to successfully control milk-borne infection; that is pasteurization. Pasteurization consists of heating milk to a certain temperature for a certain length of time to destroy pathogenic bacteria.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
		Take field trips to local water treatment and sewage treatment plants. Have students prepare reports on various types of treatments. How is water purified? What is the status of the water supply? What kinds of treatment does sewage get? Have a county health department sanitarian talk on food poisoning and food preparation, storage, and handling. You may wish to show film: *Epidemiology of salmonellosis in man and animal.*	. Wat clude tis, and o and p prima drink tion. means and b water remov done filtra . Food a gen many salmo cal f lism, chemi etc. borne volve bacte tamin utensi eratio cesse adequ food clean

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Take field trips to local water treatment and sewage treatment plants. Have students prepare reports on various types of treatments. How is water purified? What is the status of the water supply? What kinds of treatment does sewage get? Have a county health department sanitarian talk on food poisoning and food preparation, storage, and handling. You may wish to show film: *Epidemiology of salmonellosis in man and animal.*	. Water-borne diseases include: infectious hepatitis, typhoid fever, cholera, and other bacterial, viral and parasitic diseases. A primary use of water is for drinking and food preparation. There are several means of providing potable and bacteriologically safe water. Disinfection, to remove pathogens, is usually done by chlorination and/or filtration. . Food-borne food poisoning, a general term, includes many illnesses such as salmonellosis, staphylococcal food poisoning, botulism, mushroom poisoning, chemical food poisoning, etc. Prevention of food-borne disease primarily involves the prevention of bacterial and chemical contamination of food and utensils, adequate refrigeration of raw and processed foods, and use of adequate temperatures for food preparation and cleansing of utensils.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
e. Genetic transmission	Genetic transmission is that mode which relates to transfer of disorders, as well as other characteristics, via genes through reproduction. This is often referred to as hereditary transmission.	Invite a guest speaker (a physician or consultant from a genetic counselling service) to discuss hereditary disorders and the implications for marriage, rehabilitation, etc.	Altho of ge not t there d ea m tte examp hemop diabe chore epile Genet recom peopl or fa genet
2. Multiple causation theory	Etiology (causation) is viewed as the interaction of the agent, host, and environment.	Invite a guest lecturer, (physician, public health officer, epidemiologist) to your school to discuss some of the multiple factors involved in such disorders as heart disease, mental illness, cancer, arthritis, accidents, etc. Have the students report on the risk factors associated with certain diseases such as heart disease, cancer, tuberculosis, etc.	Agent are r deter Accor the p the c not s the d Publi must qualit the e that agent The i singu be il the f are n breas

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Genetic transmission is that mode which relates to transfer of disorders, as well as other characteristics, via genes through reproduction. This is often referred to as hereditary transmission.	Invite a guest speaker (a physician or consultant from a genetic counselling service) to discuss hereditary disorders and the implications for marriage, rehabilitation, etc.	Although the exact nature of genetic transmission is not thoroughly understood, there are a number of diseases that are transmitted genetically, for example, Tay Sach's disease, hemophilia, phenylketonuria, diabetes, Huntington's chorea, and some forms of epilepsy, to name a few. Genetic counselling is recommended for those people who have personal or family histories of genetic disorders.
Etiology (causation) is viewed as the interaction of the agent, host, and environment.	Invite a guest lecturer, (physician, public health officer, epidemiologist) to your school to discuss some of the multiple factors involved in such disorders as heart disease, mental illness, cancer, arthritis, accidents, etc. Have the students report on the risk factors associated with certain diseases such as heart disease, cancer, tuberculosis, etc.	Agent, host, and environment are regarded as the basic determinants of disease. According to this theory, the problem of ascertaining the cause of a disease is not solved by identifying the disease agent alone. Public health and medicine must also examine the qualities of the host and the environmental influence that interact with the agent and host. The inadequacy of the singular cause theory can be illustrated by examining the four basic factors that are necessary to produce breast cancer in mice. The

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
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		Refer students to the following: *Epidemiology and communicable disease control,* by F. B. Rogers. *Uses of epidemiology,* by J. N. Morris. *Accident prevention,* by M. N. Halsey.	Examp causa 1. Ge Scien breed in wh offsp cance 2. Vi genet mice mothe and a a mot nonsu offsp breas mothe their prese to de sprin 3. Ho femal devel breas scien (fema males devel
	Numerous factors can cause a particular disease, and what may be causal under certain conditions may not be causative under others.	Refer students to: *Health and disease,* and *Man, medicine and environment,* by Rene Dubos.	4. Nu in wh prese and s

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		presence of all four factors must be present for breast cancer to occur.
	Refer students to the following: *Epidemiology and communicable disease control*, by F. B. Rogers. *Uses of epidemiology*, by J. N. Morris. *Accident prevention*, by M. N. Halsey.	Example of multiple causation theory 1. Genetic transmission - Scientists by selective breeding can produce mice in which 80 percent of the offspring develop breast cancer. 2. Viral cause - If these genetically susceptible mice are taken from their mother's breast at birth and allowed to suckle from a mother who is from a nonsusceptible strain, the offspring will not develop breast cancer. Susceptible mothers secrete a virus in their milk which must be present for breast cancer to develop in their offspring. 3. Hormonal cause - Only female susceptible mice develop cancer of the breast. However, when scientists inject estrogen (female sex hormone) into males, they also will develop breast cancer. 4. Nutritional cause - Mice in which all factors are present (female mice bred and suckled by genetically
Numerous factors can cause a particular disease, and what may be causal under certain conditions may not be causative under others.	Refer students to: *Health and disease*, and *Man, medicine and environment*, by Rene Dubos.	

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEM F
		Show film: *Mission measles: the story of a vaccine.*	suscep placed calori develo
	Few diseases have only one cause. Many people carry the organisms for tuberculosis, staphylococcus infections, influenza, etc., but this single factor does not necessarily lead to disease.	Have the class list reasons why one may have disease-producing organisms in the body, yet not be infected.	Obviou is the cancer factor to pro mice. How do tuberc those follow to dis ences:
	The majority of people "infected" with tuberculosis do not develop the disease. The singular cause theory of disease would imply that people who develop tuberculosis are sick because of the presence of the tubercle bacillus in their body.	Discuss reasons why some people in the same sociocultural setting from the same family contract a disease quite readily, while others do not.	An epi report was co Washin indivi culosi by the certai 1. Rac the po city, and ov had th culosi whites revers rates in the the ci
	The highest rate for tuberculosis among nonwhites was found in the areas where they were a distinct minority and thus had little opportunity for meaningful social relationships with others. Conversely, for whites the rates	List diseases that appear to have a single cause. What other factors must be present for the disease to actually occur?	

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Show film: *Mission measles: the story of a vaccine.*	susceptible mothers) and placed on a restricted caloric intake rarely develop breast cancer. Obviously, no single factor is the cause of breast cancer in mice. All four factors have to be present to produce breast cancer in mice.
Few diseases have only one cause. Many people carry the organisms for tuberculosis, staphylococcus infections, influenza, etc., but this single factor does not necessarily lead to disease. The majority of people "infected" with tuberculosis do not develop the disease. The singular cause theory of disease would imply that people who develop tuberculosis are sick because of the presence of the tubercle bacillus in their body. The highest rate for tuberculosis among nonwhites was found in the areas where they were a distinct minority and thus had little opportunity for meaningful social relationships with others. Conversely, for whites the rates	Have the class list reasons why one may have disease-producing organisms in the body, yet not be infected. Discuss reasons why some people in the same sociocultural setting from the same family contract a disease quite readily, while others do not. List diseases that appear to have a single cause. What other factors must be present for the disease to actually occur?	How do people who develop tuberculosis differ from those who do not? The following study was designed to discover such differences: An epidemiological study reported by Cassel which was conducted in Seattle, Washington, found that individuals who had tuberculosis were characterized by the possession of certain traits. 1. Race. Whites living in the poorest area of the city, with the worst housing and overcrowded conditions, had the highest tuberculosis rates. For nonwhites the pattern was reversed. The highest rates for nonwhites occurred in the wealthier area of the city.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEN
	were highest in those areas in which there were high proportions of nonwhites and where the whites had little opportunity for social interaction.		2. Res mobili oped t highly from h five t averag their freque
		Do the same with diseases which appear to have a multiple causation. How are the two lists alike? How do they differ? Why do these occur? Show and discuss the film *Anatomy of a disease*. If not already done, the class may want to review portions of the film again or obtain another film which contains more depth. See film list at the end of this strand.	3. Ma those culosi many r widowe the ge 4. Liv relati of tho lived Popula four c been gists Genera long, few ne know w contac man. What a betwee "isola tuberc people

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
were highest in those areas in which there were high proportions of nonwhites and where the whites had little opportunity for social interaction.		2. Residential and job mobility. Those who developed tuberculosis were highly mobile. They moved from home to home about five times more than the average person and changed their place of employment frequently. 3. Marital status. Few of those who developed tuberculosis were married, and many more were divorced or widowed than is true for the general population. 4. Living arrangements. A relatively large proportion of those with tuberculosis lived alone in one room.
	Do the same with diseases which appear to have a multiple causation. How are the two lists alike? How do they differ? Why do these occur?	Populations with these four characteristics have been referred to by sociologists as "marginal men." Generally they do not belong, they have few friends, few neighbors that they know well, and little contact with their fellow man.
	Show and discuss the film *Anatomy of a disease*.	What are the differences between the people who are "isolated" and develop tuberculosis and "isolated" people who do not?
	If not already done, the class may want to review portions of the film again or obtain another film which contains more depth. See film list at the end of this strand.	

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	Further epidemiological analysis is necessary since not all people who are isolated develop tuberculosis even when they are exposed to the tubercle bacillus. People who are exposed to mounting stress, deprived of societal help and support, and have no friends to aid them, are placed in a position to handle these threats to their security unaided. One of the dire consequences is tuberculosis.	How does stress aid the tuberculosis bacillus to gain infectious proportions within an individual? You may wish to show the film *Stress* at this time. Although it deals with general stress reaction, rather than tuberculosis, students may want to discuss the general implications of stress to such conditions as: arthritis, heart disease, and infectious diseases, such as, tuberculosis.	An com hos dev a r hos who dis ans The str sig dev In gro tio ran yea tiv oth to How los ten tha tha The rea yea was A g pat det bet and dis stu roi

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Further epidemiological analysis is necessary since not all people who are isolated develop tuberculosis even when they are exposed to the tubercle bacillus. People who are exposed to mounting stress, deprived of societal help and support, and have no friends to aid them, are placed in a position to handle these threats to their security unaided. One of the dire consequences is tuberculosis.	How does stress aid the tuberculosis bacillus to gain infectious proportions within an individual? You may wish to show the film *Stress* at this time. Although it deals with general stress reaction, rather than tuberculosis, students may want to discuss the general implications of stress to such conditions as: arthritis, heart disease, and infectious diseases, such as, tuberculosis.	An epidemiological study comparing tuberculosis hospital employees who had developed tuberculosis as a result of working in the hospital with employees who had not developed the disease was undertaken to answer this basic question. The major finding was that stress appeared to be a significant factor in developing tuberculosis. In the nontuberculosis group, the stressful situations were distributed randomly, that is, in some years the group was relatively free of stress and other years there appeared to be multiple stresses. However, in the tuberculosis group, the stresses tended to accumulate so that each year was worse than the preceding one. The stress situations reached a peak about one year before tuberculosis was diagnosed. A group of tuberculosis patients were studied to determine the relationship between hormone balance and recovery from the disease. The hormone studied was the 17 ketosteroids produced by the

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEME FO
			adrena found . High mone we anxiety in the . Low to apat feelin . Norma be rel adjustr
	A person's emotional state may lead to an alteration in his hormone balance which increases his susceptibility to the tubercle bacillus.	Have some students read appropriate portions of *The individual, society and behavior*, by A. L. Knutson, and summarize the key principles for class discussion.	If the the pat the ho change of rec losis
			Under normal the fa with h chroni with l die.
	Infectious diseases are not the only area in which we can apply epidemiological methods. Noncommunicable diseases - cancer, heart disease, diabetes, accidents, also may be studied via the epidemiological approach.	Have some students report on selected epidemiological studies such as those found in the American Journal of Public Health. Some examples are: accidents, suicides, poisoning, smoking, alcoholism, etc.	Epidem been c disease illnes addict quency ism, a

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		adrenal gland. It was found that: . High levels of this hormone were related to anxiety and aggressiveness in the patient. . Low levels were related to apathy, depression, and feelings of hopelessness. . Normal levels tended to be related to calmness and adjustment to the illness.
A person's emotional state may lead to an alteration in his hormone balance which increases his susceptibility to the tubercle bacillus.	Have some students read appropriate portions of *The individual, society and behavior*, by A. L. Knutson, and summarize the key principles for class discussion.	If the emotional state of the patient was changed, the hormone level also changed, and the chances of recovery from tuberculosis also improved. Under therapy, those with normal levels recovered the fastest, while those with high levels became chronic patients and those with low levels tended to die.
Infectious diseases are not the only area in which we can apply epidemiological methods. Noncommunicable diseases - cancer, heart disease, diabetes, accidents, also may be studied via the epidemiological approach.	Have some students report on selected epidemiological studies such as those found in the American Journal of Public Health. Some examples are: accidents, suicides, poisoning, smoking, alcoholism, etc.	Epidemiological studies have been conducted on chronic diseases, accidents, mental illness, alcoholism, drug addiction, juvenile delinquency, industrial absenteeism, and many other causes.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
3. Role of health attitudes, beliefs, values, knowledge, and practices	Attitudes have long been recognized as potent forces that play a complex role in determining health values, knowledge, and behavior.	Discuss the role of attitudes, beliefs, and knowledge in determining man's behavior by use of Chart 2 on page 48.	What will in b beha
	An attitude may be defined as a tendency to respond either positively or negatively toward a given type of person, object, situation or ideal; it is a predisposition to action.	Have the class discuss attitudes in relation to the prevention and control of disease.	Peop not disc prac Nega resp trib caus stan an i make thei
	Attitudes provide some uniformity to behavior.	How do attitudes impede program development? Do cultural attitudes affect disease control? How?	The tion ual insu meas
	Knowledge by itself does not necessarily insure that the desired behavior will occur.	Refer to Strand III, Mental Health, for basic principles controlling attitudes. How are attitudes formed? Changed?	The smok canc caus from
	Knowledge can aid individuals and groups to make intelligent decisions which can result in desired behavior change.	Discuss how too little or the wrong kinds of knowledge may lead us to incorrect conclusions. What kind and how much knowledge does the epidemiologist seek? Why? How does this help him in solving disease-related health problems? Give some specific illustrations. Perhaps	Evid atti be m thro
	A desired health practice such as immunization against regular measles may not occur unless the individual knows that there is a vaccine available for this disease.		Thre to i edge such the

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Attitudes have long been recognized as potent forces that play a complex role in determining health values, knowledge, and behavior.	Discuss the role of attitudes, beliefs, and knowledge in determining man's behavior by use of Chart 2 on page 48.	What people feel or value will be an important factor in determining their health behavior.
An attitude may be defined as a tendency to respond either positively or negatively toward a given type of person, object, situation or ideal; it is a predisposition to action.	Have the class discuss attitudes in relation to the prevention and control of disease.	People who feel they are not susceptible to a given disease may not accept the practice of immunization. Negative attitudes with respect to safety may contribute to unsafe acts that cause accidents. Understanding the attitudes of an individual or group may make it possible to predict their health behavior.
Attitudes provide some uniformity to behavior.	How do attitudes impede program development? Do cultural attitudes affect disease control? How?	The knowledge that immunization may protect an individual from disease does not insure that preventive measures will be utilized.
Knowledge by itself does not necessarily insure that the desired behavior will occur.	Refer to Strand III, Mental Health, for basic principles controlling attitudes. How are attitudes formed? Changed?	The knowledge that cigarette smoking is related to lung cancer does not necessarily cause a smoker to refrain from this practice.
Knowledge can aid individuals and groups to make intelligent decisions which can result in desired behavior change.	Discuss how too little or the wrong kinds of knowledge may lead us to incorrect conclusions. What kind and how much knowledge does the epidemiologist seek? Why? How does this help him in solving disease-related health problems? Give some specific illustrations. Perhaps	Evidence indicates that attitudes and practices can be modified and changed through education.
A desired health practice such as immunization against regular measles may not occur unless the individual knows that there is a vaccine available for this disease.		Three basic factors appear to intervene between knowledge and the application of such knowledge to obtain the desired behavior.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEME FO
		a public health worker can come to class to discuss some of his current studies.	The bas percept and sa found trolli havior groups search example famili that: . Perc Health being to the their appear signif . Inte manner could not in income certai . Sali gardin proced tance does n the de
	All aspects of an individual's personality, including his temperament, interests, attitudes, and values, play a significant role in determining health status.	Discuss the role of emotions in one's perceptions and his reactions to these perceptions.	Psycho (physi toms t from p have i sonali import

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	a public health worker can come to class to discuss some of his current studies.	The basic principles of perception, interpretation, and salience have been found to operate in controlling the health behavior of individuals and groups in a number of research investigations. For example, among low-income families it was observed that: . Perception of health. Health is not perceived as being of primary importance to them. Other matters in their everyday lives appeared to have greater significance for them. . Interpretation. The manner by which health could be maintained was not interpreted by low-income groups to include certain measures. . Salience. Knowledge regarding a specific health procedure or verbal acceptance of its importance does not necessarily insure the desired action.
All aspects of an individual's personality, including his temperament, interests, attitudes, and values, play a significant role in determining health status.	Discuss the role of emotions in one's perceptions and his reactions to these perceptions.	Psychosomatic investigations (physical or bodily symptoms that arise in part from psychological factors) have indicated that personality factors may be important variables in

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			num arth bet mig dis
IV. Epidemiology and Ecology in the Modern Era			
A. Public health problems with ecological implications	Significant economic, demographic, social, cultural, scientific, and technological changes have occurred during the 20th century that have not only improved man's health but have also created additional health needs and problems.	Discuss and analyze some of the significant economic, demographic, cultural, and technological advances that have been made in the U.S. since 1900. What new problems have emerged?	As and cha hea wit and hea
	The two extremes of life represented by the age groups, 6 and under and 65 and over, represent the periods of man's life cycle that generally demand the greatest need for health services.	Discuss why the very young and the very old are particularly susceptible to disease, death, disability. Discuss how the health problems of the aged differ from those encountered by the younger-age groups. What are the implications of this for social and health services planning?	Exa cha . C tur occ inc In pop gro 19 fig 30 our age . O ent of

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		numerous diseases, (i.e., arthritis, ulcers, diabetes, asthma, colitis, migraine headaches, heart disease, etc.)
Significant economic, demographic, social, cultural, scientific, and technological changes have occurred during the 20th century that have not only improved man's health but have also created additional health needs and problems.	Discuss and analyze some of the significant economic, demographic, cultural, and technological advances that have been made in the U.S. since 1900. What new problems have emerged?	As our physical, social, and biological environment changes, the scope of our health problems also change with the arising of new, and the compounding of past, health problems.
The two extremes of life represented by the age groups, 6 and under and 65 and over, represent the periods of man's life cycle that generally demand the greatest need for health services.	Discuss why the very young and the very old are particularly susceptible to disease, death, disability. Discuss how the health problems of the aged differ from those encountered by the younger-age groups. What are the implications of this for social and health services planning?	Examples of demographic changes include: . Changes in the age structure of our population have occurred as a result of our increased life expectancy. In 1900, 18 percent of our population was in the age group 45 and over. In 1965, the corresponding figure was approximately 30 percent. 10 percent of our population is in the age group 65 and over. . Our population is presently increasing at the rate of 1.7 percent per year.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEM F
	Low-income groups tend to have higher morbidity and mortality rates. Utilization of health services is becoming a major problem in some areas.	Invite the county Commissioner of Social Services to class to discuss this concept from his agency's viewpoint.	Exampl includ The st groups has be of abo Some p groups signif their
	Major scientific and technological advances have aided in improving man's health. However, they have also created new problems of pollution, disposal of radioactive and industrial wastes, side effects of drugs, increasing costs of medical and dental care, etc.	List and discuss contemporary health problems, e.g., alcohol abuse, alcoholism, drinking and driving, drug abuse and addiction, cigarette smoking; pollution - air, water, solid waste, noise (jets, industrial); population explosion; malnutrition - obesity, starvation; accidents - vehicular, pedestrian, industrial; suicide - depression, mental illness - psychoses, neuroses, character disorders; health economics - financing for hospitalization, medical and dental care, others. What are the individual and community implications and responsibilities in these problems?	Exampl techno clude: . The develo since per de year s . 90 p tions for pr exist

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Low-income groups tend to have higher morbidity and mortality rates. Utilization of health services is becoming a major problem in some areas.	Invite the county Commissioner of Social Services to class to discuss this concept from his agency's viewpoint.	Examples of economic changes include: The standard of living among groups and social classes has been rising at the rate of about 1 percent a year. Some poverty and subpoverty groups have not shown a significant increase in their standard of living.
Major scientific and technological advances have aided in improving man's health. However, they have also created new problems of pollution, disposal of radioactive and industrial wastes, side effects of drugs, increasing costs of medical and dental care, etc.	List and discuss contemporary health problems, e.g., alcohol abuse, alcoholism, drinking and driving, drug abuse and addiction, cigarette smoking; pollution - air, water, solid waste, noise (jets, industrial); population explosion; malnutrition - obesity, starvation; accidents - vehicular, pedestrian, industrial; suicide - depression, mental illness - psychoses, neuroses, character disorders; health economics - financing for hospitalization, medical and dental care, others. What are the individual and community implications and responsibilities in these problems?	Examples of scientific and technological changes include: . The rate of major medical developments has increased since 1900 from about one per decade to several per year since 1940. . 90 percent of prescriptions written today are for products that did not exist 10 years ago.